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ABSTRACT

This report updates research on first-time in college freshmen (cohort) attrition at Nova Southeastern University. The purpose was to determine the extent of attrition among these students and to see if there was a profile of students more likely to leave. After one semester, 13% (36 of 280 first time in college students) in fall 1999 dropped out. One third of the entering cohort dropped out (93 cumulative dropouts) after the first academic year. This 1-year attrition rate is comparable to the mean first year attrition rate at Nova Southeastern University from 1991 through 1995. These retention rates are consistent with other private institutions with similar selection criteria (Scholastic Assessment Test score above 990 or ACT Assessment above 21). A followup of the dropouts will be conducted within 2 years to determine re-enrollment rates. The most substantial finding was that students with lower grade point averages in either high school or college and those enrolled part-time dropped out at the greatest rates. There was not a substantial difference in the proportion of males and females that dropped out. Nor was college major change status related to attrition. White and minority students dropped out at similar rates. The failure to retain these students has a substantial impact on Nova Southeastern University's income. The University should make the retention of students an increasing priority. An appendix contains detailed tables of data about segments of the student cohort. (Contains 10 tables and 3 figures.) (SLD)

AN EXAMINATION OF FIRST-TIME IN COLLEGE FRESHMEN ATTRITION WITHIN
THE FIRST YEAR OF ATTENDANCE

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Nova Southeastern University
Research and Planning

Report 00-25

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EXECUTIVE SUMMARY

This report updates research on first-time in college freshmen (cohort) attrition at Nova Southeastern University. The purpose was two-fold: first, to determine the extent of first-time in college freshmen attrition after one year; and second, to determine if there was a particular profile of those that were more likely to leave.

After one semester, 13 percent (36 of 280 first-time in college students) of the Fall Term 1999 entering cohort dropped out. One third of the entering cohort dropped out (93 cumulative dropouts) after the first academic year. This one-year attrition rate is comparable to the mean first year attrition rate (33 percent) for first time in college cohorts that entered Nova Southeastern University in the Fall Terms of 1991 to 1995.

These retention rates are consistent with other private institutions with selection criteria similar to Nova Southeastern University (e.g. SAT above 990 or ACT above 21). Previous research suggests it is unlikely that the 93 cumulative dropouts will reenroll (Atherton, 1997). However, a follow-up of the 93 students enrolled in the Fall Term of 1999 who did not enroll in the Fall Term of 2000 will be conducted within 2 years to determine re-enrollment rates.

The most substantial findings were that students with lower GPAs (either high school or college) as well as those enrolled part-time dropped out at the greatest rates. There was not a substantial difference in the proportion of males and females that dropped out. Major (field of study) change status was also unrelated to attrition. Similarly, white and minority students dropped out at equivalent rates.

The failure to retain these students has a substantial impact upon Nova Southeastern University's income. Assuming the 93 dropouts do not reenroll in the Winter Term of 2001, the university will fail to obtain \$962,220 (\$12,180 tuition x 65 full-time students plus \$6,090 x 28 part-time students) in potential income. Considering this loss in potential income is based on the attrition of just one entering class of first-time in college freshmen over one academic year, the retention of students should be an increasing priority for the university. In an effort to help retain these students, future research by Research and Planning will determine what institutional factors may have been related to student attrition by surveying dropouts, including those identified in this report as well as others.

TABLE OF CONTENTS

	Page
Executive Summary.....	ii
List of Tables.....	iv
List of Figures.....	v
Introduction.....	1
Methodology.....	1
Participants	1
Operational Definitions.....	1
Procedure.....	2
Results.....	3
Gender.....	3
Race / Ethnicity.....	3
Full-time / Part-time.....	4
Major Change	5
Collegiate Grade Point Average.....	6
Standardized Test Scores.....	6
High School Grade Point Average.....	7
Discussion.....	8
References.....	9
Appendix A.....	A-1

LIST OF TABLES

Table	Page
1 Head Counts and Proportions of Males and Females that Dropped Out.....	3
2 Proportion of Students that Dropped Out by Race / Ethnicity.....	4
3 Proportions of Dropouts by Full-time / Part-time Status.....	5
4 Proportion of the Returning Students and Dropouts that Changed Academic Major in the Winter Term of 2000.....	5
5 Mean Collegiate Grade Point Average for Returning Students and Dropouts.....	6
6 High School Grade Point Averages for Returning Students and Dropouts: Winter and Fall Terms of 2000.....	7
1a Head Counts and Proportions of Cohort and Dropouts by Gender.....	A-2
2a Head Counts and Proportions of Cohort and Dropouts by Race / Ethnicity.....	A-3
3a Head Counts and Proportions of Cohorts and Dropouts by Full-time / Part-time Status.....	A-5
4a Head Counts and Proportions of Returning Students and Dropouts by Academic Major Change Status in the Winter Term of 2000.....	A-6

LIST OF FIGURES

Figure		Page
1a	Proportions of Male and Female Students: First-time in College Freshmen and Dropouts.....	A-2
2a	Proportions of Cohort and Dropouts by Race / Ethnicity.....	A-4
3a	Proportion of Full-time / Part-time Cohorts Still Enrolled: Winter and Fall Terms 2000.....	A-5

INTRODUCTION

Student retention has received increasing attention due to high attrition rates among many institutions of higher education. Attrition of first-time in college freshmen is especially important, as a large proportion of students do not complete their degree at their initial institution. For four year institutions, approximately 44 percent of first-time in college freshmen will leave their university within the first two years of attendance (Tinto, 1993). Obviously, such high rates of student attrition have a significant fiscal impact, especially for independent institutions.

This report updates research on first-time in college freshmen (cohort) attrition at Nova Southeastern University. The purpose was two-fold: first, to determine the extent of first-time in college freshmen attrition; and second, to determine if there was a particular profile of those that were more likely to leave.

METHODOLOGY

Participants

All first-time in college freshmen that entered Nova Southeastern University in the Fall Term of 1999 were included in the study. There were 280 students, 87 were male and 193 were female.

Operational Definitions

First-time in College Freshmen (Cohort) – freshmen entering college for the first-time in the Fall Term of 1999 or in the immediately preceding summer term. Those entering college with advanced standing (i.e. previous college credits earned while in high school or advanced placement credits) were included in the cohort.

Dropouts – students that were not enrolled in a given academic term. Students were only categorized as dropouts for those academic terms in which they were not enrolled. For example, if a student was not enrolled in the Winter Term of 2000, her demographics would contribute to the dropout profile for that semester. If that same student enrolled in the Fall Term of 2000, her demographics would not be included in the dropout profile for that semester. Dropouts were identified for both the Winter and Fall terms of 2000.

Full-time / Part-time Status – The full-time / part-time status of the cohort was based on credit hours taken during the Fall Term of 1999. Those that enrolled for 12 credit hours or more were classified as full-time. Those enrolled for fewer than 12 credit hours were classified as part-time.

Academic major change - The academic major of the cohort was recorded for the Fall Term of 1999. In the Winter Term of 2000, it was determined if the academic major of each member of the cohort changed from the previous semester.

Standardized Test Scores – SAT and ACT scores of the entering students were converted into a common scale and used for analysis. Standardized test scores were available for 223 of the 280 students in the cohort.

Procedure

A complete list of first-time in college freshmen who entered in the Fall Term of 1999 was generated. The enrollment status of each student was determined for the Winter and Fall Terms of 2000. Those that were not enrolled during any given term were identified as dropouts. Profiles were then generated for each group of dropouts and compared with the entering cohort. All data was obtained through multiple queries to Nova Southeastern University's Banner student information system. The following variables were gathered and used to generate cohort / dropout profiles:

- Gender
- Race / ethnicity
- Full-time / part-time status
- Change in academic major
- Collegiate Grade point average (GPA)
- Standardized test scores
- High school GPA

One-way Analysis of Variance (ANOVA) tests were used to analyze student GPAs and attrition. Analysis of variance tests are used to determine if group values are equal by evaluating group means and standard deviations. GPAs were analyzed by one-way ANOVAs to determine if there were statistically significant differences between the GPAs of returning students and dropouts.

Chi-square tests were also used to analyze student attrition. Chi-square tests compare different levels of a categorical variable with the values of a second variable to determine if the same proportion of the second variable's values occurred in each category of the original variable. For the present study, Chi-square tests were used to determine if there were equivalent rates of attrition for students based on differences in gender, race / ethnicity, full / part-time status, and change in academic major. For example, Chi-square tests were used to determine if males and females dropped out at equivalent rates. For all statistical analyses an alpha level of 0.10 was used to determine significance.

RESULTS

There were 280 first-time in college freshmen in the Fall Term of 1999. In the Winter Term of 2000, 244 students, or 87 percent, of those were still enrolled at Nova Southeastern University. By the Fall Term of 2000, 187 students, or two thirds of the entering class, were still enrolled.

Gender

When examining the gender of dropouts, it seems that males and females dropped out at equivalent rates. The results of Chi-square tests did not reveal statistically significant differences between the proportion of males and females that dropped out in either the Winter Term ($p = 0.28$) or the Fall Term of 2000 ($p = 0.98$). In the Winter Term of 2000, 14 percent of the male and 12 percent of the female entering cohorts dropped out. In the Fall Term of 2000, 31 percent of the male and 34 percent of the female entering students dropped out (see table 1). Head counts and proportions of the cohort and dropouts by gender are presented in Appendix A table 1a and figure 1a.

Table 1. Head Counts and Proportions of Males and Females that Dropped Out.

	<u>Entering Cohort</u>	<u>Cumulative Dropouts</u>			
	<u>Fall 1999</u>	<u>Winter 2000</u>		<u>Fall 2000</u>	
	N	N	%	N	%
Male	87	12	14 %	27	31 %
Female	193	24	12 %	66	34 %
Total	280	36	13 %	93	33 %

Race / Ethnicity

When examining the racial / ethnic characteristics of the dropouts, most racial / ethnic groups dropped out in equal proportions by the Fall Term of 2000. A chi-square test was computed comparing the proportions of minority (Blacks, Asians, and Hispanics) and non-minority (white) students that dropped out. The results of the Chi-square tests did not reveal statistically significant differences between the drop out rates of minority or non-minority students in either the Winter Term ($p = 0.11$) or the Fall Term of 2000 ($p = 0.66$).

However, when examining individual ethnic categories after one semester, substantially greater proportions of both White and Black students dropped out while substantially greater proportions Hispanic and Asian students remained enrolled than those from other races. Of all cohorts, Asians dropped out at the lowest rate (see table 2). Head counts and proportions of the cohort and dropouts by race /ethnicity are presented in Appendix A table 2a and figure 2a.

Table 2. Proportion of Students that Dropped Out by Race / Ethnicity.

	<u>Entering Cohort</u>	<u>Cumulative Dropouts</u>			
	<u>Fall 1999</u>	<u>Winter 2000</u>		<u>Fall 2000</u>	
	N	N	%	N	%
White	132	20	15 %	46	35 %
Total Minority	118	10	8 %	38	32 %
Black	38	5	13 %	14	37 %
Asian	18	1	6 %	2	11 %
Hispanic	62	4	6 %	22	35 %
Nonresident Alien	11	3	27 %	3	27 %
Unknown	19	3	16 %	6	32 %
Total	280	36	13 %	93	33 %

Full-time / Part-time Status

The results of Chi-square tests revealed statistically significant differences between the proportion of full-time and part-time students that dropped out in both the Winter Term ($p < 0.01$) and the Fall Term of 2000 ($p < 0.01$). Part-time students dropped out at much greater rates than full-time students did. [By the Fall Term of 2000 one third of full-time students dropped out while over half of the part-time students dropped out (see table 3).] See Appendix A, figure 3a and table 3a for more detail.

Table 3. Proportions of Dropouts by Full-time / Part-time Status.

	<u>Entering Cohort</u>	<u>Cumulative Dropouts</u>			
	<u>Fall 1999</u>	<u>Winter 2000</u>		<u>Fall 2000</u>	
	N	N	%	N	%
Full-time	229	21	9 %	65	28 %
Part-time	51	15	29 %	28	55 %
Total	280	36	13 %	93	33 %

Changes in Academic Major

The results of a Chi-square test did not reveal a statistically significant difference in the drop out rates of students that did / did not change their original academic major from the Fall Term of 1999 to the Winter Term of 2000 ($p = 0.42$). However, those that changed their academic major dropped out at a slightly higher rate than those that did not change majors (see table 4).

Table 4. Proportion of the Returning Students and Dropouts that Changed Academic Major in the Winter Term of 2000.

<u>Major</u>	<u>Winter Term Cohort</u>	<u>Returning Students</u>		<u>Dropouts</u>	
	N	N	%	N	%
Same	211	161	76 %	50*	24 %*
Changed	33	23	70 %	10*	30 %*
Total	244	184	75 %	60*	25 %*

* Note: This represents only those that dropped out in the Fall Term of 2000 that were enrolled in the Winter Term of 2000.

Collegiate Grade Point Average

One-way Analysis of Variance tests were computed to determine if there were substantial differences between the grade point averages of returning students and dropouts. As a group, students that dropped out in the Winter Term of 2000 had substantially lower Fall Term 1999 grade point averages than returning students ($p < 0.01$). Similarly, students that dropped out in the Fall Term of 2000 had substantially lower Winter Term 2000 grade point averages than returning students, see table 5 ($p < 0.01$).

Table 5. Mean Collegiate Grade Point Average for Returning Students and Dropouts.

	<u>Fall 1999</u>		<u>Winter 2000</u>	
	<u>N</u>	<u>College GPA</u>	<u>N</u>	<u>College GPA</u>
Returning Students	242	2.88	185	2.91
Dropouts	29	1.32	59	2.02
Total	271	2.71	244	2.70

Standardized Test Scores

One-way Analysis of Variance tests were computed to determine if there were substantial differences between the standardized test scores of returning students and dropouts. There were not significant differences in standardized test scores for students that dropped out in the Winter Term of 2000 and returning students ($p = 0.16$). Similarly, there were not significant differences in standardized test scores for students that dropped out in the Fall Term of 2000 and returning students ($p = 0.55$).

High School Grade Point Average

One-way Analysis of Variance tests were computed to determine if there were substantial differences between the high school grade point averages of returning students and dropouts. The difference between high school grade point averages for students that dropped out in the Winter Term of 2000 and returning students approached significance ($p = 0.11$). As a group, students that dropped out in the Fall Term of 2000 had substantially lower high school grade point averages than returning students, see table 6 ($p < 0.01$).

Table 6. High School Grade Point Averages for Returning Students and Dropouts: Winter and Fall Terms of 2000.

	Winter 2000		Fall 2000	
	N	H.S. GPA	N	H.S. GPA
Returning Students	204	3.41	160	3.47
Dropouts	19	3.14	63	3.15

DISCUSSION

This report was the first to examine characteristics of first-time in college freshmen dropouts at Nova Southeastern University. The most substantial findings are that students with lower GPAs (either college or high school) as well as those enrolled part-time dropped out at the greatest rates. These findings are consistent with previous research. Mercer (1993) examined the attrition of older female coeds (at least 25 years old) and found dropouts had lower collegiate GPAs and were more likely to be enrolled part-time than returning students. It should be noted that only approximately 10 percent of the participants in Mercer's study were first-time in college freshmen. Similarly, Metzner and Bean (1987) found that lower collegiate GPAs were related to nontraditional freshmen attrition.

After one semester, 87 percent (244 students) of the entering cohort remained enrolled. Sixty-seven percent of the entering cohort remained enrolled (187 students) through the first academic year. This retention rate has been fairly stable at Nova Southeastern University for some time (see Atherton, 1999). The mean one-year attrition rate of first year attrition rate for first time in college cohorts that entered Nova Southeastern University in the Fall Terms of 1991 to 1995 was 33 percent Atherton 1999.

The retention rate of first time in college freshmen at Nova Southeastern University is similar to that of comparable institutions. The Consortium for Student Retention Data Exchange reported first-year retention rates for first-time in college freshmen students of 72 percent for private institutions with selection criteria similar to Nova Southeastern University (e.g. SAT above 990 or ACT above 21).

Previous research suggests that it is unlikely that the 93 cumulative dropouts will reenroll. In 1997, Atherton examined six years of enrollment for three classes of first-time in college freshmen (students entering in the Fall Terms of 1989, 1990, and 1991). Atherton found that for the first two years after initial enrollment a continually decreasing proportion of the entering cohort remained enrolled at Nova Southeastern University. However, a follow-up of the 93 students enrolled in the Fall Term of 1999 who did not enroll in the Fall Term of 2000 will be conducted within 2 years to determine re-enrollment rates.

The failure to retain these students has a substantial impact upon Nova Southeastern University's income. For example, during the academic year of 2000 – 2001 the tuition fees for one full-time undergraduate student was \$12,180. The tuition fees for one part-time undergraduate taking 6 credit hours was \$6,090. Assuming the 93 dropouts identified in this study do not reenroll in the Winter Term of 2001, the university will fail to obtain \$962,220 (\$12,180 tuition x 65 full-time students plus \$6,090 x 28 part-time students) in potential income. Furthermore, over the next three years the university will fail to obtain \$2,886,660 in potential income, without accounting for tuition increases. Considering this loss in potential income is based on the attrition of just one entering class of first-time in college freshmen over one academic year, the retention of students should be an increasing priority for the university. In an effort to help retain these students, future research by Research and Planning will determine what institutional factors may have been related to student attrition by surveying dropouts, including those identified in this report as well as others.

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Appendix A

Figure 1a. Proportions of Male and Female Students: First-time in College Freshmen and Dropouts.

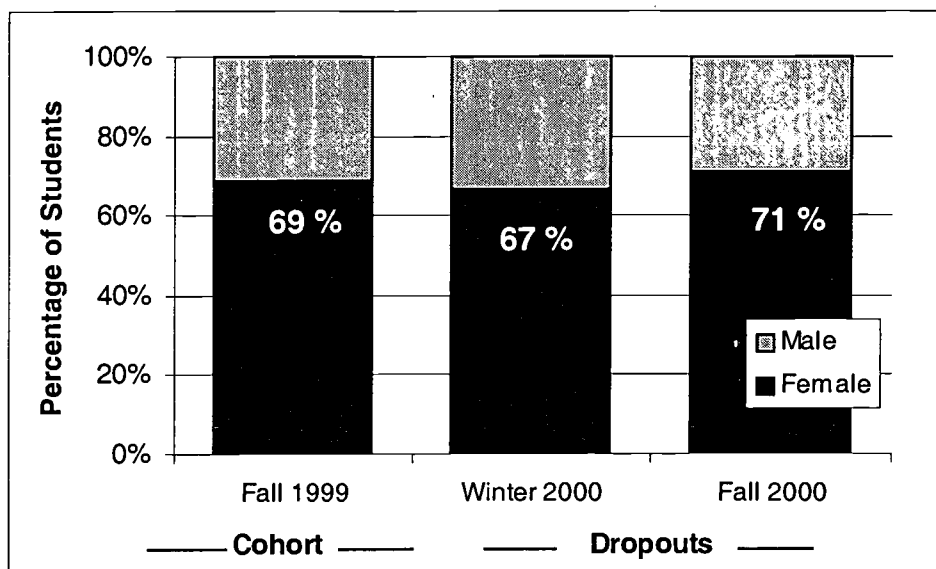


Table 1a. Head Counts and Proportions of Cohort and Dropouts by Gender.

	Entering Cohort		Cumulative Dropouts			
	Fall 1999		Winter 2000		Fall 2000	
	N	%	N	%	N	%
Male	87	31 %	12	33 %	27	29 %
Female	193	69 %	24	67 %	66	71 %
Total	280		36		93	

Table 2a. Head Counts and Proportions of Cohort and Dropouts by Race / Ethnicity.

	<u>Entering Cohort</u>		<u>Cumulative Dropouts</u>			
	<u>Fall 1999</u>		<u>Winter 2000</u>		<u>Fall 2000</u>	
	N	%	N	%	N	%
White	132	47 %	20	56 %	46	49 %
Total Minority	118	42 %	10	28 %	38	41 %
Black	38	14%	5	14 %	14	15 %
Asian	18	6%	1	3 %	2	2 %
Hispanic	62	22 %	4	11 %	22	24 %
Nonresident Alien	11	4 %	3	8 %	3	3 %
Unknown	19	7 %	3	8 %	6	6 %
Total	280	100 %	36	100 %	93	100 %

Figure 2a. Proportions of Cohort and Dropouts by Race / Ethnicity.

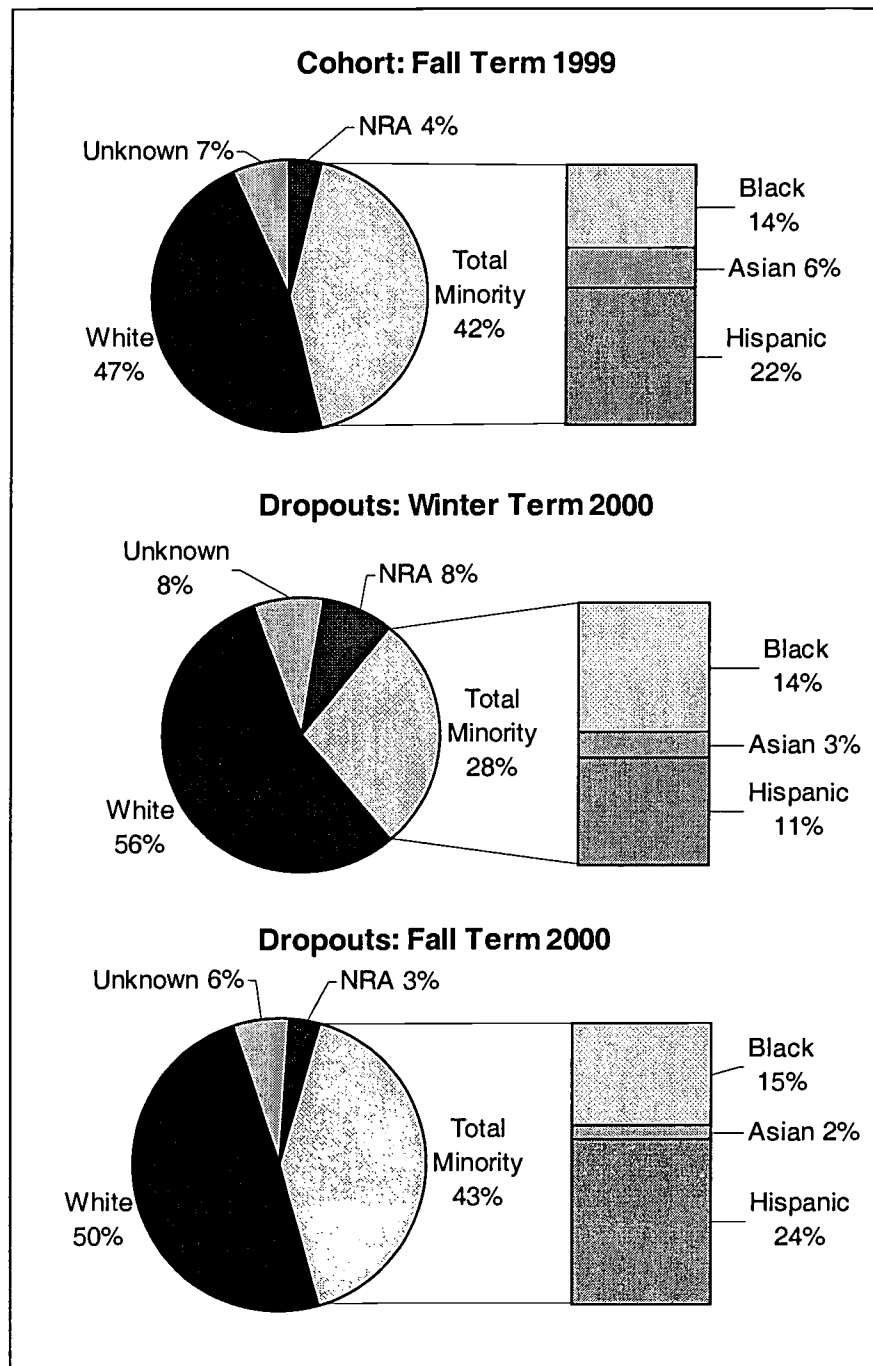


Figure 3a. Proportion of Full-time / Part-time Cohorts Still Enrolled: Winter and Fall Terms 2000.

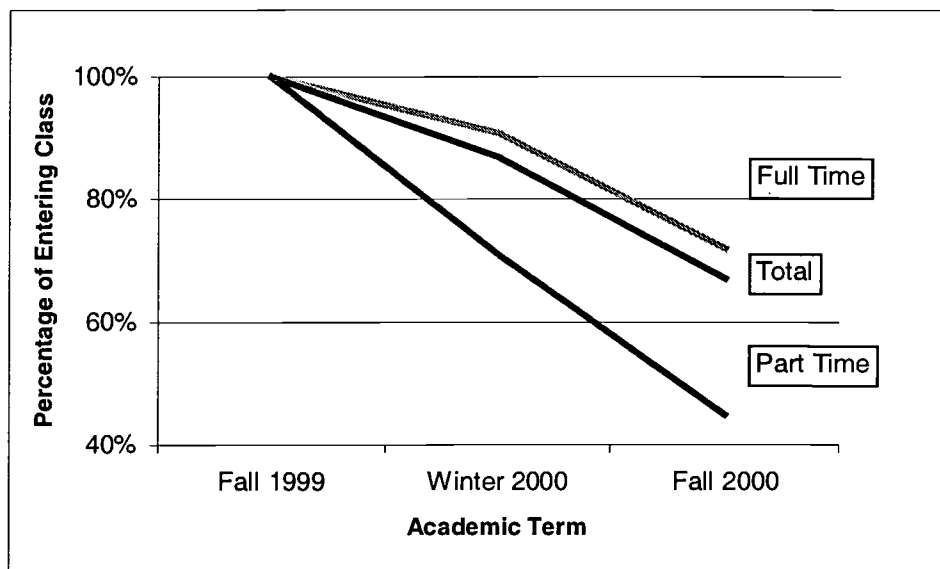


Table 3a. Head Counts and Proportions of Cohorts and Dropouts by Full-time / Part-time Status.

	Entering Cohort		Cumulative Dropouts			
	Fall 1999		Winter 2000		Fall 2000	
	N	%	N	%	N	%
Full-time	229	82 %	21	58 %	65	70 %
Part-time	51	18 %	15	42 %	28	30 %
Total	280		36		93	

Table 4a. Head Counts and Proportions of Returning Students and Dropouts by Academic Major Change Status in the Winter Term of 2000.

Major	Winter Term Cohort		Returning Students		Dropouts	
	N		N	%	N	%
Same	211	86 %	161	88 %	50*	83 %*
Changed	33	14 %	23	12 %	10*	17 %*
Total	244		184		60*	

* Note: This represents only those that dropped out in the Fall Term of 2000 that were enrolled in the Winter Term of 2000.



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